

REMARKS

Claims 1 to 30 are pending in the application, of which claims 1, 7, 11, 17, 21 and 27 are independent. Favorable reconsideration and further examination are respectfully requested.

Claims 1, 11 and 21 were rejected under 35 U.S.C. §102(b) over U.S. Patent No. 5,371,778 (Yanof) or under §103 over Yanof in view of U.S. Patent No. 6,608,628 (Ross); claims 7 to 10, 17 to 20, and 27 to 30 were rejected under §102(a) over U.S. Patent No. 6,252,608 (Snyder) or under §103 over U.S. Patent No. 6,437,782 (Pieragostini) and U.S. Patent No. 4,835,712 (Drebin); claims 2, 12 and 22 were rejected under §103 over Yanof and Ross in view of U.S. Patent No. 6,054,999 (Strandberg); claims 3, 4, 13, 14, 23 and 24 were rejected §103 over Yanof and Ross in view of U.S. Patent No. 6,405,071 (Analoui); claims 5, 15 and 25 were rejected §103 over Yanof and Ross in view of U.S. Patent No. 6,175,655 (George III); and claims 6, 16 and 26 were rejected under §103 over Yanof and Ross in view of U.S. Patent No. 4,747,052 (Hishinuma). As shown above, Applicants have amended the claims to define the invention more clearly. In view of these clarifications, withdrawal of the art rejections is respectfully requested.

Independent claim 1 defines a computer-implemented method of generating a shadow for a three-dimensional model having an infrastructure that includes a virtual bone. The method includes projecting the virtual bone onto a surface, and generating the shadow on the surface based on a projection of the virtual bone. The shadow comprises a shape that is formed on the projection of the virtual bone. Generating the shadow comprises forming

the shape by distorting at least part of the projection of the virtual bone. For example, as shown in Fig. 8 of the application, the shadow is generated by growing a quadrilateral over the projection, where the quadrilateral is about the same length as the projection, but much wider in shape (i.e., the shadow is a distorted version of the projection).

The applied art is not understood to disclose or to suggest the foregoing features of claim 1. In this regard, Yanof and Ross both describe medical imaging systems in which a resulting image (e.g., images of bone) is meant to be an accurate representation of patient bone data. By contrast, the shadows generated by the invention of claim 1 are distortions of projections of a virtual bone. Analoui, which was cited against claim 1, was cited for its alleged disclosure of creating a shape over at least part of a projection of a bone. The cited portion of Analoui, however describes rendering a display of a root canal, where the display is an accurate representation of a jaw. Analoui does not disclose or suggest formation of a bone projection, much less forming a shape over a bone projection.

For at least the foregoing reasons, claim 1 is believed to be patentable over the art. Independent claim 11 is an article of manufacture claim that roughly corresponds to claim 1; and independent claim 21 is an apparatus claim that roughly corresponds to claim 1. These claims are also believed to be patentable for at least the same reasons noted above with respect to claim 1.

Amended independent claim 7 defines a computer-implemented method of generating a shadow for a three-dimensional model having an infrastructure that includes a virtual bone. The method includes generating a bounding volume for the virtual bone, where the bounding volume has a shape that substantially corresponds to a shape of the

virtual bone (see, e.g., Fig. 12 of the application). Generating the bounding volume includes expanding the virtual bone in three-dimensional space. The method also includes generating the shadow by projecting a shape of the bounding volume onto a surface.

The applied art is not understood to disclose or to suggest the foregoing features of claim 7. In this regard, Snyder describes use of bounding boxes that encompass all pixels of an image, but does not disclose or suggest a bounding box that has a shape that substantially corresponds to a shape of the virtual bone from which the bounding box was generated, much less expanding a virtual bone to generate the bounding box. Pieragostini likewise does not disclose or suggest a bounding box that has a shape that substantially corresponds to a shape of the virtual bone from which the bounding box was generated (see, e.g., Figs. 9B and 9C of Pieragostini), or expanding a virtual bone to generate the bounding box. Drebin, which was cited for its alleged disclosure of an infrastructure containing a bone, is not understood to add anything that would remedy the foregoing deficiencies of Pieragostini and Snyder against claim 7.

For at least the foregoing reasons, claim 7 is believed to be patentable over the art. Amended independent claim 17 is an article of manufacture claim that roughly corresponds to claim 7; and amended independent claim 27 is an apparatus claim that roughly corresponds to claim 7. These claims are also believed to be patentable for at least the same reasons noted above with respect to claim 7.

Each of the dependent claims is also believed to define patentable features of the invention. Each dependent claim partakes of the novelty of its corresponding independent claim and, as such, has not been discussed specifically herein.

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the application is in condition for allowance, and such action is respectfully requested at the Examiner's earliest convenience.

Applicants' undersigned attorney can be reached at the address shown below. All telephone calls should be directed to the undersigned at 617-521-7896.


Applicants : Adam T. Lake, et al.
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Respectfully submitted,

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Paul A. Fysher
Reg. No. 40,780

ATTORNEYS FOR INTEL
Fish & Richardson P.C.
225 Franklin Street
Boston, MA 02110-2804
Telephone: (617) 542-5070
Facsimile: (617) 542-8906